



State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER RIGHTS

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August 20, 1992

MR G. RICHARD JEFFERSON
P O BOX 305
MILFORD UT 84751

Dear Richard:

Re: Milford Meters

Last week you indicated that several of the new measuring devices which had been installed are not operating because the wells are producing a significant amount of air.

The water users are responsible for the proper installation and operation of the water meters. However, I have looked into the possible solutions for this problem and the recommended installation for this type of meter. I cannot recommend particular brand names, so the enclosed product information is intended only as an example. Also enclosed are two sketches showing typical installations which would take care of the air problem and also insure that the water meter is functioning properly.

The water meter needs to be installed in a long enough section of straight pipe to allow a turbulent flow profile to fully develop in the pipe. In the situation typical of the Milford area, this would be a straight pipe section 20 pipe diameters long upstream of the meter and a straight pipe section 5 pipe diameters long downstream of the meter. For example, in a 10 inch diameter pipe the meter would have to be installed in a straight pipe 200 inches (about 17 feet) from the connection to the well or from the nearest upstream elbow and 50 inches (8.5 feet) ahead of any other fitting in the pipeline. An air and vacuum valve is needed to eliminate the air from the pipeline as indicated in the sketch. In Alternative No. 1, this should be installed about halfway between the pump and the water meter. In Alternative No. 2, it should be installed as far from the well as possible but at least 3 or 4 feet.

I realize that this type of installation may require changes in the way some of the pipeline systems are set up. If you think it would be helpful, we could make this information available to all the water users in the distribution system. For now, we will

Milford Meters
continued -page 2-

proceed with court action against only those water users who have not installed a water meter; we will consider proper installation requirements later.

If you have any questions, please contact me at 538-7380.

Sincerely,

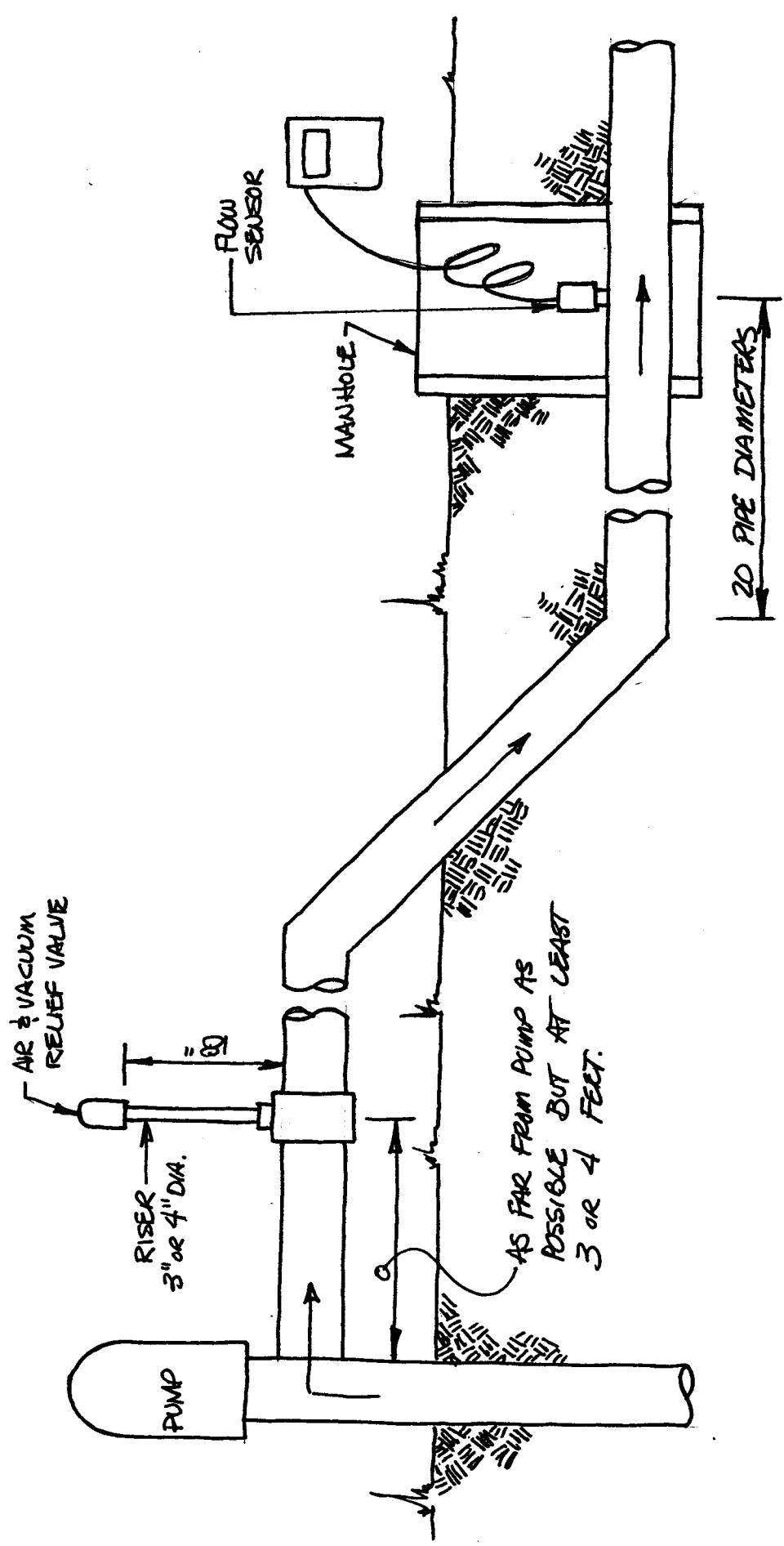


Lee H. Sim, P.E.

Assistant State Engineer
for Distribution/Adjudication

LHS:bd

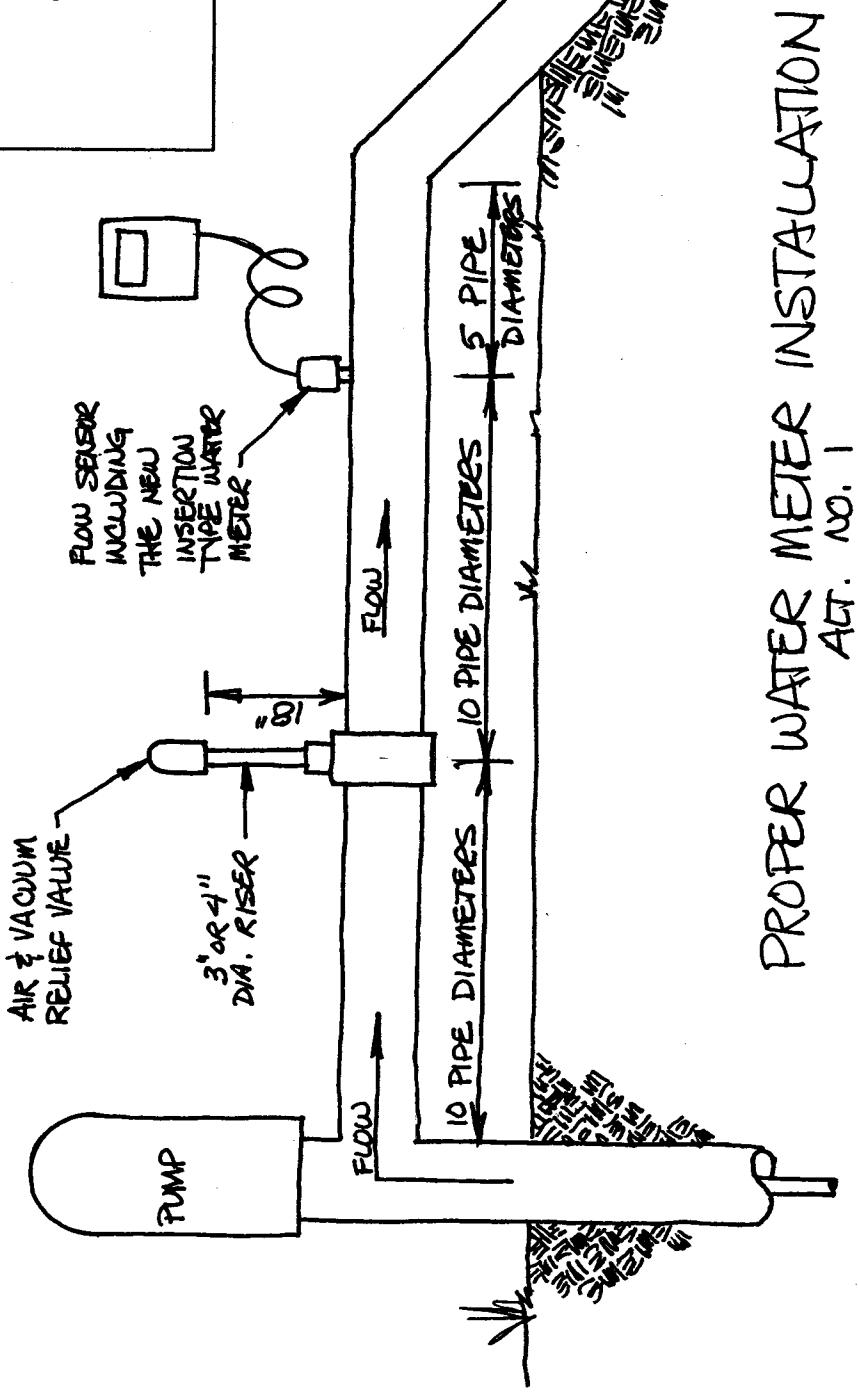
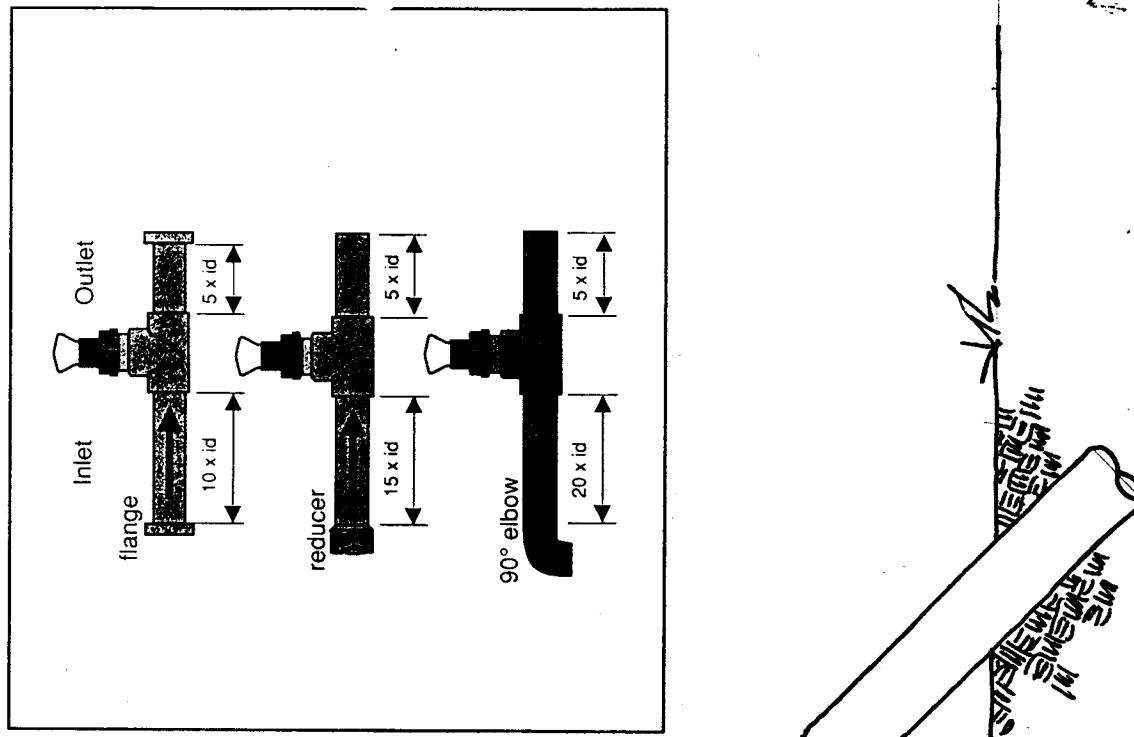
cc: Gerald Stoker
James Mayer



PROPER WATER METER INSTALLATION

ALT. NO. 2

FIGURE 1. Flow sensors, including insertion types, generally depend upon a "fully developed turbulent flow profile" for maximum linearity and accuracy. To achieve this requirement, the sensor must be located in a straight run of pipe. At least 10 pipe diameters of uninterrupted straight pipe upstream of the sensor and at least 5 pipe diameters of uninterrupted straight pipe downstream is required. Major obstructions such as pumps, throttled valves, etc. will require considerably longer straight runs. Take this into consideration when selecting a fitting location in your flow system.



MODEL
AVR-2

COMBINATION
Air & Vacuum
Relief Valve

This valve provides a large orifice for air release as a line is filled and vacuum protection when drained. A small orifice bleed valve acts continuously to release small pockets of air which collect when line is operating.

The use of these valves near the pump, at high point, and at the end of a line will protect a line from air damage, from "water hammer", will insure full line capacity, and will conserve pump horsepower.

A plugged, tapped boss is provided in the body cap for easy installation of a test petcock. Standard units are painted. A fusion epoxy coating is available on special order for severe conditions.

- Continuous Acting
- 150 PSI Service
- Cast Iron Body
- Brass Poppet Valve
- Brass Bleed Valve
- Stainless Steel Float

POPPET AND BLEED
VALVE IN OPEN POSITION

COMBINATION
AIR & VACUUM

Relief Valve

1. Body - Cast Iron
2. End Cap - Cast Iron
3. Float - Stainless Steel or Plastic
4. Float Stem - Stainless Steel
5. Lock Nuts - (2) - Stainless Steel
6. Hinge Block - Brass
7. Hinge Pin - Stainless Steel
8. Valve Seat - Neoprene Rubber
9. Bleed Valve Body - Brass
10. Vent Valve Poppet - Brass with Neoprene Seat & Bumper Tip
11. Vent Valve Body - Brass (2" N.P.T.)
12. Pipe Plug - Cast Iron
13. Cover Bolt
14. Gasket - Neoprene Rubber
15. O-Ring - Neoprene Rubber
16. Lock Nut - Brass
17. Test Valve - Optional

SEE PRICE LIST FOR SIZES AND
WEIGHTS. DISCHARGE CAPACITIES
AVAILABLE UPON REQUEST.

INSTALLATION: The Waterman Model AVR-2 Combination Air and Vacuum Relief Valve should be installed in a vertical position, placed so that debris will not enter the unit, and where the small amounts of water expelled as the unit closes will not be objectionable. Threaded outlets permit this discharge to be piped away from the valve location if necessary. Where freezing may occur, or where it may be desirable to remove this valve for inspection or repair while a line is operating, a cut-off valve should be installed between it and the line.

Waterman INDUSTRIES, INC.

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RED TOP WATER CONTROL GATES, VALVES and EQUIPMENT

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COMBINATION Air & Vacuum Relief Valve

Model
CR-100

- Lightweight Aluminum Body
- Large volume exhaust as line is filled.
- Vacuum protection as line drains.
- Continuously releases small pockets of air while line is in operation.
- For line pressures to 100 p.s.i.

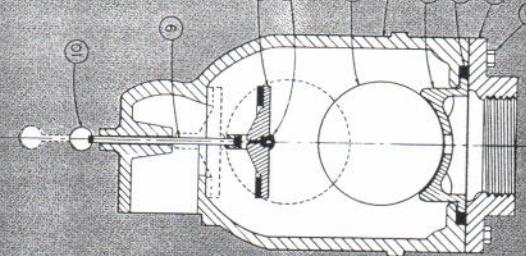
This continuous acting valve provides air and vacuum protection, insures full line capacity, and conserves pump horsepower. The Model CR-100 has been especially designed to meet irrigation requirements of dependability, light weight and moderate price. Construction includes high strength aluminum alloy body, baffle, and rubber bonded poppet and flat ball. The small orifice valve seat, guide rod, and assembly hardware, are stainless steel. Cast iron is used for the threaded base to provide easy installation and removal without the thread damage which can occur with aluminum threads.

Small Orifice Size:
2" Valve = 1/16"
3" & 4" Valve = 3/32"

COMBINATION Air & Vacuum Relief Valve

**Model
CR-100**

1. Body
2. Float Ball
3. Baffle
4. Cast Iron Base
5. Studs
6. Gasket
7. Poppet
8. Needle Valve Seat
9. Guide
10. Indicator Knob



Installation: The Model CR-100 continuous acting air and vacuum release valve should be installed in a vertical position. A riser (18" minimum) will minimize undesirable water discharge caused by line turbulence. Units should be placed so that debris will not enter the unit and where the small amounts of water expelled, as the unit closes, will not be objectionable. Installations are recommended near the pump or intake, on pressure boxes, near check valves, at all high points and at the ends of a line. Installations are often made using Model AV-75 or AV-150 Air and Vacuum Vents at some points, and the continuous acting CR-100 at other more critical positions on the line. See price list for sizes and weights.

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